NOTES FOR DESIGNER: (DO NOT INCLUDE ON CONSTRUCTION DRAWINGS)

1. REFER TO THE LANL FACILITY CONSTRUCTION SPECIFICATIONS SECTION 15180, HYDRONIC PIPING.

2. WHEN EDITING DETAIL TO SUIT PROJECT, ADD JOB SPECIFIC REQUIREMENTS AND DELETE ONLY THOSE PORTIONS THAT DO NOT APPLY. TO SEEK A VARIANCE FROM APPLICIABLE REQUIREMENTS, CONTACT THE LEM MECHANICAL POC.

3. LINE SIZE VALVES, STRAINERS AND FLEXIBLE CONNECTORS.

4. FOR END SUCTION AND IN-LINE PUMPS USE ECCENTRIC REDUCER (FLAT ON TOP) AT SUCTION NOZZLE WHEN REQUIRED. USE CONCENTRIC REDUCERS UNDER ALL OTHER CONDITIONS WHEN REQUIRED.

5. STRAINERS ARE NOT GENERALLY REQUIRED ON SECONDARY PUMPS ON CLOSED SYSTEM PIPING. STRAINERS OR OTHER FILTERING DEVICES SHOULD BE PROVIDED FOR OPEN SYSTEM PIPING, FOR EXAMPLE; CONDENSER WATER PUMP.

6. USE A NON-SLAM TYPE CHECK VALVE ON THE DISCHARGE SIDE OF THE PUMP ON CONDENSER WATER PUMPS AND PUMPS INSTALLED IN PARALLEL. A SINGLE PUMP ON A CLOSED PIPING SYSTEM DOES NOT REQUIRE A CHECK VALVE.

7. INSTALL FLEXIBLE CONNECTORS IN SUCTION AND DISCHARGE PIPING AS SHOWN ON STANDARD DRAWINGS. SELECT CONNECTORS FOR SUITABLE TEMPERATURE AND PRESSURE RATINGS WITH A MINIMUM RATED MISALIGNMENT OF 1/4" FOR SIZES 10" AND SMALLER AND 3/8" FOR SIZES 12" AND LARGER.

8. FLEXIBLE CONNECTORS ARE NOT REQUIRED ON MECHANICAL TYPE GROOVED COUPLING SYSTEMS PROVIDING FLEXIBLE GROOVED COUPLINGS ARE INSTALLED AS RECOMMENDED BY THE MANUFACTURER.

9. DO NOT INSTALL VALVES, STRAINERS, ETC., DIRECTLY AT SUCTION NOZZLE OF END SUCTION PUMPS. THE SUCTION PIPING SHOULD BE STRAIGHT FOR THE NUMBER OF PIPE DIAMETERS NOTED. WHERE THIS IS NOT POSSIBLE, USE A SUCTION DIFFUSER (COMBINATION FLOW STRAIGHTNER AND DIFFUSER).

10. PRESSURE GAUGES ARE REQUIRED ON SUCTION AND DISCHARGE SIDE OF PUMP (DO NOT MANIFOLD) AND MAY BE LOCATED IN THE PIPING OR PUMP BODY. PROVIDE COMPOUND GAUGES ON SUCTION SIDE OF PUMP IN OPEN PIPING SYSTEMS.

11. DESIGN THE PIPING SYSTEM TO ENSURE THAT THE MAXIMUM WEIGHT ON THE PUMP CASING DOES NOT EXCEED THE MANUFACTURERS RECOMMENDED COMBINED FORCES AND MOMENTS. DISCHARGE AND SUCTION PIPING SHOULD BE SUPPORTED CLOSE TO THE PUMP FLANGE TO PREVENT VIBRATION AND STRAIN ON PUMP CASING.

12. WHERE CRITICAL CONDITIONS ARE PRESENT, (UPPER FLOORS, MECHANICAL PENTHOUSE, LASER EQUIPMENT, ELECTRON MICROSCOPE, ETC.) INSTALL PUMP ON SPRING SUPPORTED CONCRETE INERTIA BASE WEIGHING 1 1/2 TO 3 TIMES WEIGHT OF PUMPING EQUIPMENT.

13. PROVIDE UNIONS ON DISCHARGE AND INLET FOR NON-FLANGED APPLICATIONS.

(NOTES ARE CONTINUED ON SHEET 8)

DRAWING DEVELOPED FOR ML-3 PROJECTS. FOR ML-1/ML-2, ADDITIONAL REQUIREMENTS AND QA REVIEWS ARE REQUIRED. (REMOVE THIS NOTE WHEN INSERTED INTO A DRAWING PACKAGE).

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
1	8-5-02	U	GENERAL REVISION.	RP	BB	GG	GG	TO

FACILITY & WASTE OPERATIONS
SYSTEMS ENGINEERING & MAINTENANCE

LANL ENGINEERING MANUAL

PUMP PIPING DETAIL
DESIGN NOTES

BLDG. X TA-X

DRAWN	R.PEARSON
DESIGN	B.BURTSCHELL
CHECKED	G.GREWAL
DATE	6-28-99

SUBMITTED
DISCIPLINE POC: GURINDER GREWAL

APPROVED FOR RELEASE
STANDARDS MANAGER: TOBIN GRUCH

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SHEET 7 OF 8

CLASSIFICATION U REVIEWER LARRY BAYS DATE

PROJECT ID CHAPTER 6 DRAWING NO ST6120 REV 1

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